



UNITED STATES PATENT AND TRADEMARK OFFICE

11.3
UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/760,394

01/21/2004

Tomonori Nishino

HITA.0497

1303

7590
Stanley P. Fisher
Reed Smith LLP
Suite 1400
3110 Fairview Park Drive
Falls Church, VA 22042-4503

02/15/2007

EXAMINER

DUONG, THOI V

ART UNIT

PAPER NUMBER

2871

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
--	-----------	---------------

3 MONTHS

02/15/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/760,394

Applicant(s)

NISHINO ET AL.

Examiner

Thoi V. Duong

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 ~~is/are~~ pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1 and 2 ~~is/are~~ allowed.
- 6) ☒ Claim(s) 3 ~~is/are~~ rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 2871

DETAILED ACTION

1. This office action is in response to the Amendment filed November 21, 2006.

Accordingly, claim 1 was amended. Currently, claims 1-3 are pending in this application.

Drawings

2. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because Fig. 1 still fails to show "a plurality of drain lines DL which extend in the Y direction and are arranged in parallel in the X direction in the pixel region AR" as described in the specification amended on November 21, 2006. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kubo et al. (Kubo, US 6,710,827 B2) in view of Nagano et al. (Nagano, US 6,912,034 B2).

Kubo discloses a liquid crystal display device comprising a first substrate 20 and a second substrate 40 which are arranged to face each other with a liquid crystal layer 30 therebetween, a plurality of gate lines 2 which are arranged in parallel the first substrate, and a plurality of drain lines 7 which are arranged to cross respective gate lines 2 of the plurality of gate lines and are arranged in parallel as shown in Fig. 1, wherein

regions which are surrounded by the gate lines and the drain lines constitute pixel regions, and each pixel region includes a switching element TFT 25 which is operated in response to a scanning signal applied from the gate line 2 and a pixel electrode 14 to which a video signal is supplied from the drain line 7 through the switching element as known in the art (col. 6, lines 4-19),

the pixel electrode is constituted of a first pixel electrode 9 formed of a light transmitting conductive layer which is disposed in one light transmitting region defined in the pixel region and a second pixel electrode 12 formed of a non-light transmitting conductive film which is disposed in another light reflecting region defined in the pixel region (col. 6, lines 4-19),

an insulation film 11 is formed above the first pixel electrode 9 and an opening which allows the first pixel electrode 9 to be exposed is formed in a region of the insulation film corresponding to the light transmitting region (Figs. 1 and 2 and col. 7, lines 11-26),

the second pixel electrode 12 is formed over the light reflecting region of the insulation film (col. 7, lines 11-26), and

a holding capacitance electrode 15 is formed on the same layer as the gate line 2 and the holding capacitance electrode is formed of a material having a light shielding property (col. 6, lines 46-50).

Kubo discloses a liquid crystal display device that is basically the same as that recited in claim 3 except for the holding capacitance electrode extending in the second direction (parallel with the drain line) and being arranged at a portion corresponding to a side wall surface of the opening of the insulation film.

As shown in Fig. 6, Nagano discloses a liquid crystal display device comprising a holding capacitance electrode 9 having a light shielding film 25 extending in parallel with the drain line 4 and being formed in an overlapped manner to a boundary portion between a first pixel electrode 1 and a second pixel electrode 2 for preventing light leakage (col. 10, lines 7-18). Fig. 2 of Nagano also shows that a light shielding film 8, which is the same as the light shielding film 25, is formed on the same layer as the gate line 3.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the liquid crystal display device of Kubo with the teaching of Nagano by forming the holding capacitance electrode extending in the second direction (parallel with the drain line) in an overlapped manner to a boundary portion between the light transmitting region and the light reflecting region in order to prevent light leakage caused by alignment disorder of liquid crystal (col. 1, lines 7-11 and col. 10, lines 13-18). Accordingly, with the

combination, the holding capacitance electrode is arranged at a portion corresponding to a side wall surface of the opening of the insulation film.

Allowable Subject Matter

5. Claims 1 and 2 are allowed.

The following is an examiner's statement of reasons for allowance: none of the prior art of record fairly suggests or shows all of the limitations as claimed.

Specifically, re claim 1, none of the prior art of record discloses, in combination with other limitations as claimed, a liquid crystal display device comprising a boundary between the light transmitting region and the light reflecting region shaped rectangular and has two first sides extending in the first direction and two second sides extending in the second direction, wherein at least one of the holding capacitance lines is formed in an overlapped manner to one of the first sides, and is formed of a material having a light shielding property, and wherein the holding capacitance electrode is formed in an overlapped manner to at least one part of the second sides, and is formed of a material having a light shielding property.

The most relevant reference, US 6,912,034 B2 to Nagato et al. (Nagato), fails to disclose or suggest the holding capacitance line formed in an overlapped manner to one of the first sides. As shown in Fig. 6, Nagano only discloses the holding capacitance electrode 25 formed in an overlapped manner to the second side which is parallel to the data line 4, and formed of a material having a light shielding property.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

6. Applicant's arguments filed November 21, 2006 have been fully considered but they are not persuasive.

Re claim 3, Applicant argued that none of the cited reference teaches or suggests an opening which allows the first pixel electrode to be exposed, being formed in a region of the insulating film corresponding to the light transmitting region, and a holding capacitance electrode arranged at a portion corresponding to a side wall surface of the opening of the insulating film. Applicant also argued that the proposed combination would freeze Kubo's double-mode mechanism.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Kubo alone discloses a liquid crystal display device comprising a holding capacitance line 15 and an opening of the insulating film 11 which exposes the first pixel electrode 9 and provide a light transmitting

Art Unit: 2871

region as shown in Figs. 1 and 2. However, Nagano is employed for teaching a holding capacitance electrode 25 extended from the holding capacitance line 9 and in parallel with the drain line 4 to cover the boundary portion of pixel electrodes 1 and 2, wherein the holding capacitance electrode is formed of a material in order to prevent light leakage caused by alignment disorder of the liquid crystal at the boundary portion as shown in Fig. 6 (col. 10, lines 13-18).

Thus, one skilled in the art would be motivated to combine Kubo's double-mode display mechanism with the light-shielding holding capacitance electrode of Nagano to prevent light leakage caused by alignment disorder of the liquid crystal at the boundary portion between the light transmitting portion and the light reflecting portion.

It is noted that the Examiner did not attempt to replace Kubo's double-mode display mechanism. Instead, the device of Kubo is modified with the light-shielding holding capacitance electrode as taught by Nagano to prevent light leakage. Accordingly, the light-shielding holding capacitance electrode applied to the device of Kubo would not destroy Kubo's double-mode display mechanism; instead, without light leakage, the resulting combination will help to improve display quality of the device of Kubo.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is

Art Unit: 2871

filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thoi V. Duong whose telephone number is (571) 272-2292. The examiner can normally be reached on Monday-Friday from 8:30 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms, can be reached at (571) 272-1787.

Thoi V. Duong



02/07/2007